1. Background

In accordance with the approved workplan at the 10th CEARAC Focal Point Meeting (17-18 April 2012, Toyama). CEARAC has been preparing for organization of the 4th NOWPAP training course on remote sensing data analysis. Through consultation with CEARAC Focal Points in China, venue was determined at Ocean University of China and dates of the course will be held from Oct 21 to 25, 2013. After consultation with potential donors and collaborators, PICES and IOCCG, China National Environmental Monitoring Center agreed to sponsor the course. The name of the course was determined as "PICES-NOWPAP joint training course on remote sensing data analysis and the 1st announcement of the course was posted on CEARAC website on April 20, 2013.

There were 73 applicants for the course, from the NOWPAP member states, other Asian countries, Africa, Europe, North and South America and Middle East by the deadline. The organizing committee (Annex) selected 24 trainees including 5 funded trainees (funded by CNEMC, IOCCG and PICES) and 19 self-funded trainees.

2. Objective

Objective of this activity is to provide opportunities for students, young researchers and coastal managers to help obtain useful skills and knowledge to utilize remote sensing data in monitoring and assessment of the marine environment.

3. Course program

Lecturers from the NOWPAP member states, Germany and the US will give lectures on remote sensing techniques for monitoring and assessment of marine environment including Introduction to ocean color remote sensing, validation, time series analysis of ocean colour data and preliminary eutrophication assessment by remote sensing (Annex).

4. Expected outcome

Implementation of the fourth NOWPAP training course on remote sensing data analysis is expected to contribute to capacity building of the NOWPAP member states for utilizing remote sensing data for marine environment conservation. It is also expected to obtain useful information to consider future directions of CEARAC activities related to remote sensing through feedbacks from trainees.

5. Schedule

Time		Actions	Main body
2013	April 30	• First announcement of posted on CEARAC website	CEARAC
	June 30	• Deadline for application	-
	July	• Selection of participants were done by the organizing committee	Organizing committee member and CEARAC
	Sep (11th CEARAC	• Review of preparation status	CEARAC / CEARAC FPs

	FPM)		
	Oct 21-25	• Organization of the course	CEARAC and experts
	Q4	• Report and course materials will be posted on CEARAC website	CEARAC

6. Budget

Source	Amount
NOWPAP	10,000 US$
PICES	5,000 US$
IOCCG	Travel expense and accommodation fee for 1 lecturer and 1 trainee
China National Environmental Monitoring Center	In kind

Annex
TRAINING PROGRAM (as of August 30, 2013)

Day	Time	Program	Lecturers
Oct 21	9:00-9:20	Welcome address	-
	9:20-10:50	Introduction to Satellite Oceanography (L) and recent progress in ocean color remote sensing part I: Uncertainties in ocean colour remote sensing (L)	Dr. Roland Doerffer
	11:00-12:30	Introduction and recent progress in ocean color remote sensing part II : Correction of the influence of the atomosphere in Ocean colour remote sensing (L)	Dr. Roland Doerffer
	13:30-15:00	Ocean color remote sensing for Case 2 waters(L)	Dr. Zhihua Mao
	15:15-17:00	Satellite Ocean Color: Challenges & the Software (L) + (H)	Dr. Mati Kahru
		Introduction into MERIS data and BEAM software part I (H)	Dr. Roland Doerffer
Oct 22	9:00-10:30	Bio-optical properties in northeastern asian marginal seas derived from a decade of ocean color data (L)	Dr. Young Je Park
	10:45-12:15	Introduction of GOCI and its applications (L)	Dr. Young Je Park
	13:30-17:00	Visualization and verification of ocean colour satellite data (L) + (H)	Dr. Mati Kahru
Oct 23	9:00-10:30	Primary Production (L)	Dr. Joji Ishizaka
	10:45-12:15	Eutrophication (L) Satellite based monitoring of marine and coastal environment of the Northwest Pacific (L)	Dr. Joji Ishizaka
	13:30-17:00	Time series analysis of ocean colour data (H)	Dr. Mati Kahru
Oct 24	9:00-10:30	Utilization of the Landsat image (L)	Dr. Leonid MITNIK
	10:30-12:15	Sentinel Missions of ESA/EUMETSAT (L)	Dr. Roland Doerffer
	13:30-17:00	Introduction into MERIS data and BEAM software part-II (H)	Dr. Roland Doerffer
Oct 25	9:00-10:30	Oil spill monitoring by remote sensing (L)	Dr. Leonid MITNIK
	10:50-12:15	Oil spill detection by SAR and Lidar system （L）	Dr. Chaofang ZHAO
	13:00-15:30	Uncertainties in ocean colour remote sensing (H)	Dr. Roland Doerffer

	15:30-17:30	Assignment for all trainees (H)	-
	17:00-17:30	Closing	-

(L) Lecture

(H) Hands-on computer excise

ORGANIZING COMMITEE

<From local organizers and host institutions>
Dr. Chao Fang ZHAO
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<From NOWPAP>
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Dr. Ling SUN
Associate Professor
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China Meteorological Administration

<From PICES>
Dr. Young Je Park,
Korea Ocean Satellite Center(KOSC)
Korea Institute of Ocean Science & Technology (KIOST)

<From IOCCG>
Dr. Roland Doerffer
Head of Remote Sensing Laboratory
Institute for Coastal Research

GKSS Research Center

Members of the above organizing committee will be responsible for finalizing the 5 days program and selection of applicants.